AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

Please cancel claims 1-46, and add new claims 47-91, as follows:

Claims 1-46 (canceled).

47. (new): An illumination system for a microlithography projection exposure system for illuminating an illumination field with light from a primary light source, comprising:
a light distribution device configured to receive light from the primary light source and to produce a two-dimensional intensity distribution in a pupil-shaping surface of the illumination system,
wherein the light distribution system is configured to variably set the two-dimensional intensity distribution,
wherein the light distribution device has at least one optical modulation device configured to controllably change the angular distribution of the light incident on the optical modulation device and
wherein an axicon system is arranged between the optical modulation device and the pupil-shaping surface.

48. (new): The illumination system according to Claim 47, wherein the optical modulation device has an array of individual elements that are driven individually to change an incidence angle of radiation incident on the individual elements.

49. (new): The illumination system according to Claim 47, wherein the optical modulation device is configured to be controlled such that at least substantially all of the light intensity that is incident on the optical modulation device is deflected into a usable region of the pupil-shaping surface.

50. (new): The illumination system according to Claim 47, further comprising, between the optical modulation device and the pupil-shaping surface, an optical system, to convert the angular distribution produced by the optical modulation device into a spatial distribution in the pupil-shaping surface.

51. (new): The illumination system according to Claim 50, wherein the optical system has a variable focal length.

52. (new): The illumination system according to Claim 50, wherein the axicon system is incorporated into the optical system.

53. (new): The illumination system according to Claim 47, wherein the optical modulation device is a reflective optical modulation device.

54. (new): The illumination system according to Claim 53, wherein the reflective optical modulation device is arranged obliquely with respect to an optical axis in the manner of a deflection mirror.

55. (new): The illumination system according to Claim 47, wherein, between the optical modulation device and the

pupil-shaping surface there is an optical distance which is selected such that angles between an optical axis and light beams belonging to the angular distribution in the region of the pupil-shaping surface are less than 5°.

56. (new): The illumination system according to Claim 47, wherein the optical modulation device has at least one mirror arrangement having an array of individual mirrors configured to be controlled individually, to change an angular distribution of light incident on the mirror arrangement.

57. (new): The illumination system according to Claim 56, wherein at least some of the individual mirrors have a flat mirror surface.

58. (new): The illumination system according to Claim 56, wherein at least some of the individual mirrors are curved mirrors with a finite mirror focal length.

59. (new): The illumination system according to Claim 58, wherein the mirror focal length is dimensioned such that radiation incident on the individual mirrors strikes the pupil-shaping surface in substantially focused form.

60. (new): The illumination system according to Claim 56, wherein the individual mirrors are configured as adaptive mirrors, which are adjustable in shape.

61. (new): The illumination system according to Claim 56, wherein the individual mirrors of the mirror arrangement all have the same shape and size.

62. (new): The illumination system according to Claim 56, wherein the mirror arrangement comprises a first mirror group and at least a second mirror group, each group having at least one individual mirror, the individual mirrors of the mirror groups having at least one of differing sizes, differing shapes and differing curvatures.

63. (new): The illumination system according to Claim 56, wherein at least some of the individual mirrors of the mirror arrangement have an optical structure forming the distribution of the radiation reflected from the individual mirror.

64. (new): The illumination system according to Claim 63, wherein the optical structure is a diffractive optical structure.

65. (new): The illumination system according to Claim 56, wherein individual mirrors of the mirror arrangement are configured to be tilted relative to other individual mirrors of the mirror arrangement.

66. (new): The illumination system according to Claim 47, wherein the optical modulation device is an electro-optical element having an array of individual elements, selected from the group consisting of controllable diffraction gratings and acousto-optical elements.

67. (new): The illumination system according to Claim 48, wherein, between the light source and the optical modulation device, there is arranged an optical device for

concentrating radiation incident on the optical device onto the individual elements of the optical modulation device.

68. (new): The illumination system according to Claim 67, wherein the optical device includes a two-dimensional array having telescope lens systems.

69. (new): The illumination system according to Claim 67, wherein the optical device includes a diffractive optical array generator for transforming an incoming beam into a plurality of light beams concentrated on individual optical elements of the optical modulation device.

70. (new): The illumination system according to Claim 69, wherein the diffractive optical array generator is designed as a Dammann grid.

71. (new): The illumination system according to Claim 47, further comprising, between the pupil-shaping surface and a plane of the illumination field, a light mixing device mixing the light of the intensity distribution.

72. (new): The illumination system according to Claim 71, wherein the light mixing device comprises at least one integrator rod having an entry surface, and the pupil-shaping surface lies in the region of a plane which is located upstream of the entry surface and which is a Fourier-transformed plane in relation to the entry surface.

73. (new): The illumination system according to Claim 71, wherein the light mixing device comprises at least one fly's eye condenser.

74. (new): The illumination system according to Claim 73, wherein the fly's eye condensor has an entry surface, and the pupil-shaping surface lies in the region of the entry surface or a surface which is optically conjugate with respect to the entry surface.

75. (new): The illumination system according to Claim 73, further comprising a component controlling the optical modulation device such that individual radiation channels of the fly's eye condenser are either at least substantially irradiated or at least substantially non-irradiated.

76. (new): The illumination system according to Claim 73, wherein the light distribution device comprises at least one diffractive optical element arranged optically between the optical modulation device and the pupil-shaping surface and configured to receive light emerging from the optical modulation device and to modify the light by introducing an angular distribution according to an effect function defined by the configuration of the diffractive optical element.

77. (new): The illumination system according to Claim 76, wherein the diffractive optical element is designed such that a beam emerging from an individual element of the optical modulation device is shaped by the diffractive optical element to conform to the shape and size of one single optical channel or a group of adjacent optical channels of the fly's eye condenser.

78. (new): The illumination system according to Claim 76, wherein the diffractive optical element is a computer generated hologram.

79. (new): The illumination system according to Claim 73, wherein the fly's eye condenser is not assigned any mask for the individual blocking of radiation channels.

80. (new): The illumination system according to Claim 47, wherein no fly's eye condenser nor any integrator rod is arranged between the pupil-shaping surface and a plane of the illumination field.

81. (new): The illumination system according to Claim 47, wherein, in or in the vicinity of the pupil-shaping surface, there is arranged a raster element for shaping and homogenizing the intensity distribution in a following field plane of the illumination system.

82. (new): The illumination system according to Claim 47, further comprising a control device configured to drive individual elements of the optical modulation device, such that control signals for controlling the individual elements are varied as a function of the structure of a mask to be exposed.

83. (new): A method of producing at least one of semiconductor components and finely structured components other than semiconductor components, comprising:
illuminating a reticle arranged in an object plane of a projection objective with the aid of an illumination system, which has at least one optical modulation device

having a plurality of individually controlled elements for changing the angular distribution of radiation incident on the optical modulation device;
producing an image of the reticle on a light-sensitive substrate;
wherein said illuminating step comprises setting the angular distribution of the light incident on the reticle by setting of at least two of the elements in relation to each other, and transforming the angular distribution emerging from the optical modulation device by an axicon system.

84. (new) The method according to Claim 83, wherein the optical modulation device comprises a mirror arrangement having a plurality of individual mirrors configured to be controlled individually, and the relative setting of the individual elements comprises tilting at least one of the individual mirrors with respect to others of the individual mirrors about at least one tilt axis.

85. (new): The method according to Claim 83, in which the optical modulation device has a plurality of diffraction gratings configured to be controlled individually, and the relative setting comprises changing the diffraction effects of at least two of the diffraction gratings.

86. (new): The method according to Claim 83, wherein the illumination system comprises a fly's eye condenser having a plurality of radiation channels, and wherein the individual elements are controlled such that radiation channels are either at least substantially completely

illuminated or at least substantially completely non-illuminated.

87. (new): An illumination system for a microlithography projection exposure installation for illuminating an illumination field with light from a primary light source, comprising:
a light distribution device configured to receive light from the primary light source and to produce a two-dimensional intensity distribution in a pupil-shaping surface of the illumination system,
wherein the light distribution device variably sets the two-dimensional intensity distribution,
wherein the light distribution device has at least one optical modulation device to controllably change the angular distribution of the light incident on the optical modulation device, and
wherein a space between the optical modulation device and the pupil-shaping surface is free of optical components.

88. (new): The illumination system according to Claim 87, wherein a distance between the optical modulation device and the pupil-shaping surface is so great that the pupil-shaping surface lies in the far-field region of the optical modulation device.

89. (new): An illumination system for a microlithography projection exposure installation for illuminating an illumination field with light from a primary light source, comprising:
a light distribution device configured to receive light from the primary light source and to produce a two-

dimensional intensity distribution in a pupil-shaping surface of the illumination system,
wherein the light distribution device is configured to variably set the two-dimensional intensity distribution,
wherein the light distribution device has at least one optical modulation device configured to controllably change the angular distribution of the light incident on the optical modulation device,
wherein the optical modulation device has at least one mirror arrangement having an array of individual mirrors configured to be controlled individually, to change an angular distribution of the light incident on the mirror arrangement, and
wherein the mirror arrangement comprises a first mirror group and at least a second mirror group, each group having at least one individual mirror, the individual mirrors of the mirror groups having at least one of differing sizes, differing shapes and differing curvature.

90. (new): An illumination system for a microlithography projection exposure installation for illuminating an illumination field with light from a primary light source, comprising:
a light distribution device configured to receive light from the primary light source and to produce a two-dimensional intensity distribution in a pupil-shaping surface of the illumination system,
wherein the light distribution device is configured to variably set the two-dimensional intensity distribution,
wherein the light distribution device has at least one optical modulation device configured to controllably change

the angular distribution of the light incident on the optical modulation device,
wherein the optical modulation device has at least one mirror arrangement having an array of individual mirrors configured to be controlled individually, to change an angular distribution of the light incident on the mirror arrangement, and
wherein the individual mirrors are configured as adaptive mirrors configured for being adjusted in shape.

91. (new): An illumination system for a microlithography projection exposure installation for illuminating an illumination field with light from a primary light source, comprising:
a light distribution device configured to receive light from the primary light source and to produce a two-dimensional intensity distribution in a pupil-shaping surface of the illumination system,
wherein the light distribution device is configured to variably set the two dimensional intensity distribution,
wherein the light distribution device has at least one optical modulation device configured to controllably change the angular distribution of the light incident on the optical modulation device, and
wherein the optical modulation device is an electro-optical element having an array of individual elements, which are formed as one of controllable diffraction gratings and acousto-optical elements.